

## 2013 Users Meeting

Advanced Photon Source  
Center for Nanoscale Materials  
Electron Microscopy Center

Building on Success:  
FOCUS ON  
THE FUTURE

### Satellite Workshop 10 — User Facilities for Industry 101

*Organizers: Andreas Roelofs (CNM), Jyotsana Lal (APS), Katie Carrado Gregar (CNM), and Susan Strasser (APS)*

In order to increase awareness of the industrial community to Argonne National Laboratory user facilities, the Advanced Photon Source (APS), the Center for Nanoscale Materials (CNM) and the Electron Microscopy Center (EMC) welcomed industrial scientists, engineers and related professionals to a one-day workshop to learn more about Argonne's National Laboratory and the capabilities/techniques available for their use. The workshop showcased several successful industrial user experiments, and explained the different ways in which industrial scientists can work at Argonne or with Argonne scientists. Other highlights included how to write a successful user proposal and how to effectively collaborate with user facility staff. More than 50 researchers and professional staff from a wide variety of affiliations, including 17 different companies and commercial enterprises, registered for this event.

Mark Peters, Argonne's Deputy Laboratory Director for Programs opened the workshop with an overview of Argonne National Laboratory and showcased Argonne's mission to provide science-based solutions to pressing global challenges. He presented how the national lab system can link basic science to industry by bridging the gap through use-inspired fundamental research by having academic, industrial and laboratory scientists working collaboratively.

Brian Stephenson, Associate Laboratory Director for Photon Sciences, introduced the APS and described the significant planned upgrade of the facility as well as the new capabilities that will result. The APS, which is currently the brightest source of high-energy X-rays and largest user facility in North America, is used to study the structures of materials and processes at the atomic scale. Andreas Roelofs, CNM Deputy Division Director & Industrial Liaison, spoke about the unique capabilities the CNM has to offer and encouraged potential new users to reach out to the staff scientists with any technical questions. Examples of successful industrial user highlights from companies like Hewlett Packard, IBM, and Seagate, among others, were shown.

The keynote address was given by Olav Hellwig from HGST, a Western Digital company. Dr. Hellwig stressed the importance of DOE's user facilities for his own research in the area of magnetic recording, and explained how experiments using synchrotrons helped to increase recording density in today's hard-drive industry, citing the example of magnetic cluster size. Without access to these key facilities, progress would not have been made at such a rapid pace.

Gyorgy Snell from Takeda SanDiego, in the first invited presentation, outlined the evolution of protein crystallography for drug discovery. Structure-based drug design (SBDD) has been used with increasing success for the discovery of potent and selective molecules that target various diseases. Protein crystallography carried out at synchrotron beamlines is the main SBDD tool used today. The various automation tools developed at the height of the structural genomics efforts also helped to establish high-throughput crystallography for drug discovery efforts, enabling the structure determination of large numbers of protein-ligand co-complex structures.

The second invited presentation entitled “Sustainability? Not without New Capabilities in Measurement Science,” was given by Brian Landes from the DOW Chemical Company. To design and implement truly sustainable technologies in the arenas of energy capture, energy storage, water filtration, and light-weighting demands, the ability is needed to measure the nature and dynamics of complex interactions between atoms, molecules, surfaces, and interfaces that occur in actual end-use environments. This ability requires the development of new methods to acquire data on “as-used” systems and devices; Dr. Landes focused on his in situ experiments in these areas.

The last speaker from industry was Adam Khan, AKHAN Technologies, who recently received a license for a CNM patent and is working with Argonne National Laboratory to establish a collaborative research and development agreement (CRADA). In his talk Dr. Khan praised Argonne’s willingness to work with industry and detailed his experience in working with Argonne’s Technology Development and Commercialization division (TDC).

The afternoon sessions were focused on the “Nuts and Bolts” of how to work with Argonne National Laboratory either through work for others (WFO), CRADAs or through proposal-driven research at the user facilities. The user & outreach program managers for the APS, Susan Strasser, and the CNM, Kathleen Carrado Gregar, described the processes of writing a user proposal, the merits for user proposal evaluation and how to navigate the user facility websites. The workshop concluded with tours of the APS and CNM, and gave the participants the opportunity to interact directly with scientists at the different facilities.

## AGENDA

9:00	Mark Peters (Argonne National Laboratory) <b>Introduction to Argonne</b>
9:30	Brian Stephenson (APS, Argonne National Laboratory) <b>Introduction to APS</b>
9:45	Andreas Roelofs (CNM, Argonne National Laboratory) <b>Introduction to CNM</b>
10:00	Olav Hellwig (HGST, a Western Digital Company) <b>Keynote Address: Future Trends in Magnetic Recording Media (<a href="#">abstract</a>)</b>
10:30	<i>Break</i>
10:45	Gyorgy Snell (Takeda San Diego) <b>From High Throughput to High Difficulty: The Evolution of Protein Crystallography for Drug Discovery (<a href="#">abstract</a>)</b>
11:05	Brian Landes (Dow Chemical Company) <b>Sustainability? Not Without New Capabilities in Measurement Science (<a href="#">abstract</a>)</b>
11:25	Adam Khan (AKHAN Technologies) <b>Towards the Diamond Age of Microelectronics</b>
11:45	<b>Eric Isaacs (Argonne Director), Open Forum for Q&amp;A</b>
12:00	<i>No-host Lunch</i>
1:30	Diane Hart (TDC, Argonne National Laboratory) <b>Working with Argonne: Nuts &amp; Bolts</b>
1:50	Susan Strasser (APS, Argonne National Laboratory) <b>Working with APS: Nuts &amp; Bolts</b>
2:10	Katie Carrado Gregar (CNM, Argonne National Laboratory) <b>Working with CNM: Nuts &amp; Bolts</b>
2:30	<b>Facility Tours: APS or CNM (parallel tours)</b>
3:30	<b>One-on-One Discussions with Scientific Staff</b>